

II. REMARKS

A. PRIORITY

Applicants note that the Office Action Cover Sheet did not indicate acknowledgement of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) as indicated on page one (1), paragraph one (1) of the instant specification. Applicants respectfully request correction thereto in any subsequent Office Action.

B. SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Submitted concurrently herewith is a Supplemental Information Disclosure Statement and form PTO-1449 citing twenty-one (21) new references which recently came to Applicants' attention. In addition, Applicants submit document number WO 01/14991 a2 which was not received by the Examiner in conjunction with Applicants' Information Disclosure Statement filed on January 23, 2002. While the Applicants do not believe that these references will affect the patentability of the pending claims, Applicants respectfully request the Examiner to consider the pending claims in connection with these references in order to make them of record.

C. COMMENTS/ARGUMENTS

Claims 1-42 were pending in this application. Claims 1 and 13-16 have been amended as stated above. Claims 2-12 and 17-20 remain as previously pending. In response to Examiner's request for Restriction, Applicants elected Claims 1-20. Accordingly, Claims 21-42 have been canceled as stated above. Claims 43-58 are newly added claims. Thus, Claims 1-20 and 43-58 now remain pending.

Attached hereto is Exhibit 1 captioned "Version with Markings to Show Changes Made" and listing all of the changes made to the currently pending claims. Also attached hereto is Exhibit 2 captioned "Clean Version of the Pending Claims" and listing all of the pending claims as amended.

In the Office Action mailed December 18, 2003, the Examiner rejected Claims 1-20. In particular, the Examiner rejected Claims 1-12 under 35 U.S.C. § 112, second paragraph. The Examiner further rejected Claims 1-10 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,403,639 to Belsan, et al. ("Belsan") in view of U.S.

Patent No. 6,502,174 to Beardsley, et al. ("Beardsley"). Additionally, the Examiner rejected Claims 11-20 under 35 U.S.C. § 103 as being unpatentable over the combined system of Belsan and Beardsley as applied to Claims 1-10, and further in view of U.S. Patent No. 5,884,098 to Mason, Jr. ("Mason").

By the foregoing amendments, Applicants have amended Claims 1-20 and have added new Claims 43-58. Thus, Applicants respectfully request reconsideration of Claims 1-20 as amended and Claims 43-58 as added.

D. REJECTION OF CLAIMS 1-12 UNDER 35 U.S.C. § 112, ¶ 2

In rejecting Claims 1-12 under 35 U.S.C. § 112, second paragraph, Examiner argued that those claims were "indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." The specific rejections made by the Examiner, and Applicants' response to these rejections, are discussed below.

1. Claim 1

With respect to Claim 1, the Examiner stated that "it is not understood what is the claimed 'message system' refer to?" Although Applicants contend that Claim 1 is definite, Claim 1 has been clarified without altering its scope. This clarification is not made for patentability purposes, and it is believed that the claim would satisfy the statutory requirements for patentability without the entry of such clarification. Withdrawal of the rejection of Claim 1 under 35 U.S.C. § 112, second paragraph is requested.

2. Claims 2-12

With respect to Claims 2-12, the Examiner has stated that "these claims have the same defect as their base claim, hence are rejected for the same reason." Claims 2-12, which depend from Claim 1, are believed to be patentable for the same reasons articulated above with respect to Claim 1. Accordingly, Applicants respectfully request the Examiner to withdraw the rejection of Claims 2-12 under 35 U.S.C. § 112, second paragraph.

E. REJECTION OF CLAIMS 1-20 UNDER 35 U.S.C. § 103

The Examiner rejected Claims 1-10 under 35 U.S.C. § 103 as being unpatentable over Belsan in view of Beardsley. The Examiner rejected Claims 11-20

under 35 U.S.C. § 103 as being unpatentable over the combined system of Belsan and Beardsley as applied to Claims 1-10, and further in view of Mason.

1. Claim 1

With respect to Claim 1, the Examiner asserts that Belsan discloses "a distributed file system communicating with a plurality of intelligent storage devices, wherein the distributed file system comprises a messaging system and [sic] configured to store and manage metadata about files/directories of the system." Examiner concedes that Belsan does not "specifically disclose that the storage metadata structures includes locations of metadata block, content data blocks and parity data blocks." In addition, the Examiner further asserts that Beardsley "teaches a storage metadata structure includes [sic] locations of metadata block, content data blocks and parity data blocks." The Examiner then concludes that "with both Beardsley [sic] and Beardsley teaching in front of him/her, it would have been obvious for an ordinary skilled person in the art at the time the invention was made to be motivated to modify Belsan's system with the metadata structure taught by Beardsley because by doing so the combined system would be able to apply the parity information stored in the metadata structure to perform associated storage segment validation or error checking, therefore, result in a faster storage block data recovery in case of system malfunction." Applicants respectfully traverse this rejection and the Examiner's characterization of the cited references.

In order to establish a *prima facie* case of obviousness for a claim, the prior art references must teach or suggest *all* of the claim limitations. M.P.E.P. § 2143, at 2100-125 (Feb. 2003). Thus, to sustain the foregoing rejection of Claim 1, Belsan, alone or in combination with Beardsley, must identically teach or suggest every element of Claim 1. Claim 1 has been amended, however, to clarify Applicants' invention. This amendment was not made for patentability purposes, and Applicants believe that Claim 1 would satisfy the statutory requirements for patentability without the entry of the amendment. Applicants respectfully submit that Belsan and Beardsley, individually or in combination, fail to teach or suggest every element of any of Claim 1 as originally pending or as amended.

For example, Claim 1 as amended recites “[a] distributed file system communicating with a plurality of intelligent storage devices, wherein the distributed file system comprises a distributed messaging system configured to store and manage metadata about files and directories stored on the distributed file system such that the metadata includes locations of metadata data blocks, content data blocks, and parity data blocks, wherein the content data blocks of at least one of the files or directories stored on the distributed file system span at least two of the intelligent storage devices.” Belsan, alone or in combination with Beardsley fails to teach or suggest that the content data blocks of at least one of the files or directories stored on the distributed file system span at least two of the intelligent storage devices. Since the prior art references fail to teach or suggest every element of Claim 1, Applicants respectfully request that the rejection of Claim 1 be withdrawn.

2. Claims 2-12

Claims 2-12, which depend from Claim 1 and include all of the limitations of Claim 1, are believed to be patentable for the same reasons stated above with respect to Claim 1, and because of the additional limitations set forth therein. For example, Belsan, alone or in combination with Beardsley fails to teach or suggest that the content data blocks of at least one of the files or directories stored on the distributed file system span at least two of the intelligent storage devices. Since the prior art references fail to teach or suggest every element of Claims 2-12, Applicants respectfully request that the rejection of Claims 2-12 be withdrawn. In addition, Applicants traverse the Examiner's rejections with respect to each of Claims 2-12 as follows.

a. Claim 2

With respect to Claim 2, the Examiner asserts that Belsan and Beardsley disclose all the features as claimed by Applicants and that “Belsan further discloses that the system configured to provide different levels of replication and redundancy information stored via the corresponding metadata.” Applicants respectfully traverse this rejection and the Examiner's characterization of the cited references. Moreover, as noted above, Applicants respectfully submit that Belsan and Beardsley, individually or in combination, fail to teach or suggest every element of any of Claim 2, and Applicants respectfully request that the rejection of Claim 2 be withdrawn.

b. Claims 3-4

With respect to Claims 3-4, Examiner asserts that Belsan and Beardsley disclose all the features as claimed by Applicants and that "Beardsley further discloses that the redundancy information includes parity information in form of data blocks." Applicants respectfully traverse this rejection and the Examiner's characterization of the cited references. Moreover, as noted above, Applicants respectfully submit that Belsan and Beardsley, individually or in combination, fail to teach or suggest every element of any of Claims 3-4, and Applicants respectfully request that the rejection of Claims 3-4 be withdrawn.

c. Claim 5

With respect to Claim 5, the Examiner asserts that Belsan and Beardsley disclose all the features as claimed by Applicants and that "Belsan further discloses that the file system is configured to change redundancy parameters of a directory when the directory corresponding metadata is updated." Applicants respectfully traverse this rejection and the Examiner's characterization of the cited references. Moreover, as noted above, Applicants respectfully submit that Belsan and Beardsley, individually or in combination, fail to teach or suggest every element of any of Claim 5, and Applicants respectfully request that the rejection of Claim 5 be withdrawn.

d. Claims 6 and 8

With respect to Claims 6 and 8, Examiner asserts that Belsan and Beardsley disclose all the features as claimed by Applicants and that "Beardsley further discloses that the file system is configured to copy and replicate data in real-time throughout a subset of the plurality of intelligent storage devices and store the locations of the copied directory data in the corresponding metadata." Applicants respectfully traverse this rejection and the Examiner's characterization of the cited references. Moreover, as noted above, Applicants respectfully submit that Belsan and Beardsley, individually or in combination, fail to teach or suggest every element of any of Claims 6 and 8, and Applicants respectfully request that the rejection of Claims 6 and 8 be withdrawn.

e. Claim 7

With respect to Claim 7, the Examiner asserts that Belsan and Beardsley disclose all the features as claimed by Applicants and that "Belsan further discloses that

the system is configured to move data in real-time, wherein [sic] the location of the moved data is stored with the associated metadata.” Applicants respectfully traverse this rejection and the Examiner’s characterization of the cited references. Moreover, as noted above, Applicants respectfully submit that Belsan and Beardsley, individually or in combination, fail to teach or suggest every element of any of Claim 7, and Applicants respectfully request that the rejection of Claim 7 be withdrawn.

f. Claims 9-10

With respect to Claims 9-10, Examiner asserts that Belsan and Beardsley disclose all the features as claimed by Applicants and that “Beardsley further discloses that the system is configured to replicate data in response to a high volume of requests and high utilization of the storage hardware.” Applicants respectfully traverse this rejection and the Examiner’s characterization of the cited references. Moreover, as noted above, Applicants respectfully submit that Belsan and Beardsley, individually or in combination, fail to teach or suggest every element of any of Claims 9-10, and Applicants respectfully request that the rejection of Claims 9-10 be withdrawn.

g. Claims 11-12

With respect to Claims 11-12, Examiner concedes that the combined system of Belsan and Beardsley do not disclose the claimed read/write features claimed by Applicant. Examiner asserts, however, that Mason teaches that the claimed features are the general options of RAID Level 5 processing and that “it would have been obvious to one of ordinary skilled person in the art at the time the invention was made, to adapt the very popular RAID processing into the combined system of Belsan and Beardsley, because by applying the existing technique of RAID level 5 processing as taught by Mason into the combined system of Belsan and Beardsley, the system would provide a handy read-modify-write operations for storage data block I/O processing.” Applicants respectfully traverse this rejection and the Examiner’s characterization of the cited references. Moreover, as noted above, Applicants respectfully submit that Belsan, Beardsley, and Mason, individually or in combination, fail to teach or suggest every element of any of Claims 11-12, and Applicants respectfully request that the rejection of Claims 11-12 be withdrawn.

3. Claim 13

With respect to Claim 13, the Examiner asserts that the combined system of Belsan, Beardsley, and Mason disclose the features as claimed by Applicants including “a plurality of storage units for storing data blocks,” “receive data file read request, retrieve data file location information corresponding to the request via look up the locally stored data blocks, get the requested data from remote storage units,” and “return it back to the requestor.” Applicants respectfully traverse this rejection and the Examiner’s characterization of the cited references.

As noted above, in order to establish a *prima facie* case of obviousness for a claim, the prior art references must teach or suggest *all* of the claim limitations. M.P.E.P. § 2143, at 2100-125 (Feb. 2003). Thus, to sustain the foregoing rejection of Claim 13, Belsan, alone or in combination with Beardsley and/or Mason, must identically teach or suggest every element of Claim 13. Claim 13 has been amended, however, to clarify Applicants’ invention. This amendment was not made for patentability purposes, and Applicants believe that Claim 13 would satisfy the statutory requirements for patentability without the entry of the amendment. Applicants respectfully submit that Belsan, Beardsley, and Mason, individually or in combination, fail to teach or suggest every element of any of Claim 13 as originally pending or as amended.

For example, Claim 13 as amended recites “[a] virtual file system for storing data files among a plurality of modular storage units, the virtual file system comprising a plurality of storage units configured to . . . retrieve location data information corresponding to the requested data file, wherein the location data information includes storage location information about data blocks that correspond to the requested data file, wherein data blocks that correspond to a single copy of the requested data file are distributed among two or more storage units.” Belsan, alone or in combination with Beardsley and Mason fails to teach or suggest that data blocks that correspond to a single copy of the requested data file are distributed among two or more storage units. Since the prior art references fail to teach or suggest every element of Claim 13, Applicants respectfully request that the rejection of Claim 13 be withdrawn.

4. Claims 14-20

Claims 14-20, which depend from Claim 13 and include all of the limitations of Claim 13, are believed to be patentable for the same reasons stated above with respect to Claim 13, and because of the additional limitations set forth therein. Belsan, alone or in combination with Beardsley and Mason fails to teach or suggest that data blocks that correspond to a single copy of the requested data file are distributed among two or more storage units. Since the prior art references fail to teach or suggest every element of Claims 14-20, Applicants respectfully request that the rejection of Claims 14-20 be withdrawn. In addition, Applicants traverse the Examiner's rejections with respect to each of Claims 14-20 as follows.

a. Claim 14

With respect to Claim 14, the Examiner asserts that that the combined system of Belsan, Beardsley, and Mason disclose the features as claimed by Applicants including "a plurality of storage units for storing data blocks," "receive data file read request, retrieve data file location information corresponding to the request via look up the locally stored data blocks, get the requested data from remote storage units," and "return it back to the requestor." Applicants respectfully traverse this rejection and the Examiner's characterization of the cited references. Moreover, as noted above, Applicants respectfully submit that Belsan, Beardsley, and Mason, individually or in combination, fail to teach or suggest every element of any of Claim 14, and Applicants respectfully request that the rejection of Claim 14 be withdrawn.

b. Claims 15-16

With respect to Claims 15-16, Examiner asserts that the combined system of Belsan, Beardsley, and Mason disclose all the features as claimed by Applicants and that they further disclose "the system having a write module in communicating with the switch component to write and distribute the plurality of data blocks among at least [sic] two of the storage units." Applicants respectfully traverse this rejection and the Examiner's characterization of the cited references. Moreover, as noted above, Applicants respectfully submit that Belsan, Beardsley, and Mason individually or in combination, fail to teach or suggest every element of any of Claims 15-16, and Applicants respectfully request that the rejection of Claims 15-16 be withdrawn.

c. Claims 17-20

With respect to Claims 17-20, Examiner asserts that the combined system of Belsan, Beardsley, and Mason "further disclose the write module is configured to mirrored data corresponds to the distributed parity protection information of the write request." Applicants respectfully traverse this rejection and the Examiner's characterization of the cited references. Moreover, as noted above, Applicants respectfully submit that Belsan, Beardsley, and Mason, individually or in combination, fail to teach or suggest every element of any of Claims 17-20, and Applicants respectfully request that the rejection of Claims 17-20 be withdrawn.

F. NEW CLAIMS

New Claim 43 depends from amended Claim 1 and is believed to be allowable for the same reasons articulated above with respect to Claim 1, and because of the additional features recited therein.

New Claims 44-46 depend from amended Claim 13 and are believed to be allowable for the same reasons articulated above with respect to Claim 13, and because of the additional features recited therein.

New Claims 47-58 have been added and are believed to be allowable. No new matter is added by these claims. Moreover, Applicants respectfully submit that Belsan, Beardsley, and Mason, individually or in combination, fail to teach or suggest every element of any of Claims 47-58, and thus, Claims 47-58 are believed to be allowable.

III. CONCLUSION

In view of the forgoing, the present application is believed to be in condition for allowance, and such allowance is respectfully requested. If further issues remain to be resolved, the Examiner is cordially invited to contact the undersigned such that any remaining issues may be promptly resolved. Also, please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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EXHIBIT 1
Version with Markings to Show Changes Made

1. **(Currently Amended)** A distributed file system communicating with a plurality of intelligent storage devices, wherein the distributed file system is ~~[comprises a messaging system]~~ configured to store and manage data and metadata about files and directories stored on the distributed file system~~[such that the metadata includes locations of metadata data blocks, content data blocks, and parity data blocks]~~, wherein the data of at least one of the files or directories stored on the distributed file system span at least two of the intelligent storage devices.

13. **(Currently Amended)** A virtual file system for storing data files among a plurality of modular storage units, the virtual file system comprising:

 a plurality of storage units configured to:

 store ~~[data]~~ blocks;

 receive a data file read request;

 retrieve location data information corresponding to the requested data file, wherein the location data information includes storage location information about ~~[data]~~ blocks that correspond to the requested data file, wherein blocks that correspond to a single copy of the requested data file are distributed among two or more storage units;

 retrieve locally stored ~~[data]~~ blocks; and

 request remotely stored ~~[data]~~ blocks, ~~[from the plurality of storage units]~~;

receive a copy of the remotely stored data blocks from the plurality of storage units; and

return the requested data file.]

14. **(Currently Amended)** The virtual file system of Claim 13, wherein the storage units include a storage device and a processing module, wherein the locally stored data is stored on the storage device, and the processing module retrieves the locally stored ~~[data]~~ blocks from the storage device.

15. **(Currently Amended)** The virtual file system of Claim 13, further comprising a write module in communication with the switch component, wherein the write module is configured to receive a data file write request and to determine the

storage location of a plurality of [data] blocks that correspond to the data file write request.

16. (Currently Amended) The virtual file system of Claim 15, wherein the write module is further configured to distribute the plurality of [data] blocks among at least two of the plurality of storage units.

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

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31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Cancelled)

41. (Cancelled)

42. (Cancelled)

43. (New) The distributed file system of Claim 1, wherein a file has been stored on a number of intelligent storage devices, wherein the number is determined specifically for the file, and wherein the number is equal to or greater than two.

44. (New) The virtual file system of Claim 13, wherein the blocks include content data.

45. (New) The virtual file system of Claim 13, wherein the blocks include metadata.

46. (New) The virtual file system of Claim 13, wherein the number of storage units on which the blocks are stored has been determined specifically for the data file.

47. (New) A method for storing a file among at least two of a plurality of storage modules, the method comprising:

receiving a request to store a file;

storing a first portion of the file on a first storage module;

storing a second portion of the file on a second storage module;

wherein the first portion is different from the second portion; and

storing address information about where the first portion and second portion were stored, whereby the file may be retrieved as a single file.

48. (New) The method of Claim 47, wherein the address information is stored among at least two of the plurality of storage modules.

49. (New) The method of Claim 47, further comprising storing a copy of the first portion of the file on a third storage module; and storing a copy of the second portion of the file on a fourth storage module, wherein the third storage module is different from the fourth storage module.

50. (New) The method of Claim 49 further comprising storing copy address information about where the copy of the first portion and the copy of the second portion were stored.

51. (New) The method of Claim 50, wherein the copy address information is stored among at least two of the plurality of storage modules.

52. (New) The method of Claim 47 further comprising generating error correction data for the file.

53. (New) The method of Claim 52 further comprising storing a first portion of the error correction data among at least two of the plurality storage modules.

54. (New) A distributed file system comprising:
a plurality of storage modules,

a file, wherein the file is divided into portions, and the portions are stored among at least two of the plurality of storage modules; and

metadata stored in the distributed file system related to the file, wherein the metadata identifies where the portions are stored.

55. (New) The distributed file system of Claim 54 wherein at least a first portion of the file is stored on a first one of the plurality of storage modules at least a second portion of the file is stored on a second one of the plurality of storage modules, wherein the first one of the plurality of storage modules is different from the second one of the plurality of storage modules, and the first portion of the file is different from the second portion of the file.

56. (New) The distributed file system of Claim 54, wherein the metadata is stored among at least two of the plurality of storage units.

57. (New) The distributed file system of Claim 54, wherein the metadata further includes error correction data.

58. (New) The distributed file system of Claim 54 further comprising a copy of the file, wherein the copy of the file is stored among at least two of the plurality of storage units.

EXHIBIT 2
Clean Version of the Pending Claims

1. **(Currently Amended)** A distributed file system communicating with a plurality of intelligent storage devices, wherein the distributed file system is configured to store and manage data and metadata about files and directories stored on the distributed file system, wherein the data of at least one of the files or directories stored on the distributed file system span at least two of the intelligent storage devices.

2. **(Original)** The distributed file system of Claim 1, further configured to provide different levels of replication and redundancy within the distributed file system, wherein the replication and redundancy information for a file or directory is stored with the file or directory's corresponding metadata.

3. **(Original)** The distributed file system of Claim 2, wherein the redundancy information includes parity information.

4. **(Original)** The distributed file system of Claim 3, wherein the parity information includes parity data blocks and the location of the parity data blocks and the metadata stores information about the location of the parity data blocks.

5. **(Original)** The distributed file system of Claim 1, further configured to change redundancy parameters of a file or directory, wherein the file or directory's corresponding metadata is updated to store information about the location of the redundancy data.

6. **(Original)** The distributed file system of Claim 5, further configured to store a copy of the file or directory data in real-time throughout a subset of the plurality of intelligent storage devices and to store the locations of the copied file or directory data in the file or directory's corresponding metadata.

7. **(Original)** The distributed file system of Claim 1, further configured to move data in real-time, wherein the location of the moved data is stored with the data's corresponding metadata.

8. **(Original)** The distributed file system of Claim 1, further configured to replicate data in real-time, wherein the location of the replicated data is stored with the data's corresponding metadata.

9. **(Original)** The distributed file system of Claim 8, further configured to replicate data in response to a high volume of requests for the data.

10. **(Original)** The distributed file system of Claim 8, further configured to replicate data in response to high utilization of the hardware which stores the data.

11. **(Original)** The distributed file system of Claim 8, further configured to handle more READ requests than WRITE requests.

12. **(Original)** The distributed file system of Claim 8, further configured to handle block transactions.

13. **(Currently Amended)** A virtual file system for storing data files among a plurality of modular storage units, the virtual file system comprising:

a plurality of storage units configured to:

store blocks;

receive a data file read request;

retrieve location data information corresponding to the requested data file, wherein the location data information includes storage location information about blocks that correspond to the requested data file, wherein blocks that correspond to a single copy of the requested data file are distributed among two or more storage units;

retrieve locally stored blocks; and

request remotely stored blocks.

14. **(Currently Amended)** The virtual file system of Claim 13, wherein the storage units include a storage device and a processing module, wherein the locally stored data is stored on the storage device, and the processing module retrieves the locally stored blocks from the storage device.

15. **(Currently Amended)** The virtual file system of Claim 13, further comprising a write module in communication with the switch component, wherein the write module is configured to receive a data file write request and to determine the storage location of a plurality of blocks that correspond to the data file write request.

16. **(Currently Amended)** The virtual file system of Claim 15, wherein the write module is further configured to distribute the plurality of blocks among at least two of the plurality of storage units.

17. (Original) The virtual file system of Claim 16, wherein the data file write request includes mirror protection information.

18. (Original) The virtual file system of Claim 17, wherein the write module is further configured to distribute mirrored data that corresponds to the data file write request and complies with the mirror protection information among at least two of the plurality of storage units.

19. (Original) The virtual file system of Claim 16, wherein the data file write request includes parity protection information.

20. (Original) The virtual file system of Claim 19, wherein the write module is further configured to distribute parity data that corresponds to the data file write request and complies with the parity protection information among at least two of the plurality of storage units.

21. (Cancelled)

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36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Cancelled)

41. (Cancelled)

42. (Cancelled)

43. (New) The distributed file system of Claim 1, wherein a file has been stored on a number of intelligent storage devices, wherein the number is determined specifically for the file, and wherein the number is equal to or greater than two.

44. (New) The virtual file system of Claim 13, wherein the blocks include content data.

45. (New) The virtual file system of Claim 13, wherein the blocks include metadata.

46. (New) The virtual file system of Claim 13, wherein the number of storage units on which the blocks are stored has been determined specifically for the data file.

47. (New) A method for storing a file among at least two of a plurality of storage modules, the method comprising:

receiving a request to store a file;

storing a first portion of the file on a first storage module;

storing a second portion of the file on a second storage module;

wherein the first portion is different from the second portion; and

storing address information about where the first portion and second portion were stored, whereby the file may be retrieved as a single file.

48. (New) The method of Claim 47, wherein the address information is stored among at least two of the plurality of storage modules.

49. (New) The method of Claim 47, further comprising storing a copy of the first portion of the file on a third storage module; and storing a copy of the second portion of the file on a fourth storage module, wherein the third storage module is different from the fourth storage module.

50. (New) The method of Claim 49 further comprising storing copy address information about where the copy of the first portion and the copy of the second portion were stored.

51. (New) The method of Claim 50, wherein the copy address information is stored among at least two of the plurality of storage modules.

52. (New) The method of Claim 47 further comprising generating error correction data for the file.

53. (New) The method of Claim 52 further comprising storing a first portion of the error correction data among at least two of the plurality storage modules.

54. (New) A distributed file system comprising:

a plurality of storage modules,

a file, wherein the file is divided into portions, and the portions are stored among at least two of the plurality of storage modules; and

metadata stored in the distributed file system related to the file, wherein the metadata identifies where the portions are stored.

55. (New) The distributed file system of Claim 54 wherein at least a first portion of the file is stored on a first one of the plurality of storage modules at least a second portion of the file is stored on a second one of the plurality of storage modules, wherein the first one of the plurality of storage modules is different from the second one of the plurality of storage modules, and the first portion of the file is different from the second portion of the file.

56. (New) The distributed file system of Claim 54, wherein the metadata is stored among at least two of the plurality of storage units.

57. (New) The distributed file system of Claim 54, wherein the metadata further includes error correction data.

58. (New) The distributed file system of Claim 54 further comprising a copy of the file, wherein the copy of the file is stored among at least two of the plurality of storage units.